

CLAIMS

What is claimed is:

- Sub A11
1. A method for identifying a disease-influencing gene, the method comprising the steps of:
 - a) selecting individuals having a risk factor for a disease;
 - b) creating queries regarding the individuals' behaviors and environments;
 - c) storing the queries on a server;
 - d) providing each of the individuals with a remotely programmable apparatus having a user interface for communicating the queries and for receiving responses, and having communication means for communicating with the server through a communication network;
 - e) transmitting the queries from the server to each of the remotely programmable apparatuses;
 - f) transmitting the responses of the individuals to the queries from the remotely programmable apparatuses to the server;
 - g) creating a database of the individuals' behaviors and environments;
 - h) using data mining techniques to distinguish a group of individuals having similar behavioral and environmental profiles;
 - i) categorizing the group of individuals into at least two categories according to the individuals' disease progression;
 - j) determining the genotypes of the at least two categories of individuals;
 - k) using data mining techniques to find a gene difference between the at least two categories of individuals; and
 - l) identifying the disease-influencing gene.

- 1 2. The method of claim 1, wherein the disease-influencing
2 gene is of the type which reduces the risk of developing
3 the disease.
- 4
- 1 3. The method of claim 2, further comprising the step
2 of using the disease-influencing gene to develop a
3 drug candidate for reducing the risk of developing
4 the disease.
- 5
- 1 4. The method of claim 2, further comprising the step
2 of identifying a protein associated with the
3 disease-influencing gene.
- 4
- 1 5. The method of claim 4, further comprising the
2 step of using the protein to develop a drug
3 candidate for reducing the risk of developing
4 the disease.
- 5
- 1 6. The method of claim 1, wherein the disease-influencing
2 gene is of the type which increases the risk of
3 developing the disease.
- 4
- 1 7. The method of claim 6, further comprising the step
2 of using the disease-influencing gene to develop a
3 drug candidate for reducing the risk of developing
4 the disease.
- 5
- 1 8. The method of claim 6, further comprising the step
2 of identifying a protein associated with the
3 disease-influencing gene.
- 4
- 1 9. The method of claim 8, further comprising the
2 step of using the protein to develop a drug
3 candidate for reducing the risk of developing
4 the disease.
- 5

- 540
A2
10. A method for identifying a disease-influencing gene, the method comprising the steps of:
- a) selecting individuals having a risk factor for a disease;
 - b) creating queries regarding the individuals' behaviors and environments;
 - c) storing the queries on a server;
 - d) providing each of the individuals with a remotely programmable apparatus having a user interface for communicating the queries and for receiving responses, and having communication means for communicating with the server through a communication network;
 - e) transmitting the queries from the server to each of the remotely programmable apparatuses;
 - f) transmitting the responses of the individuals to the queries from the remotely programmable apparatuses to the server;
 - g) creating a database of the individuals' behaviors and environments;
 - h) distinguishing a group of individuals having similar disease progressions;
 - i) using data mining techniques to categorize the group of individuals into at least two categories according to the individuals' behavioral and environmental profiles;
 - j) determining the genotypes of the at least two categories of individuals;
 - k) using data mining techniques to find a gene difference between the at least two categories of individuals; and
 - l) identifying the disease-influencing gene.

11. The method of claim 10, wherein the disease-influencing gene is of the type which reduces the risk of developing the disease.

12. The method of claim 11, further comprising the step of using the disease-influencing gene to develop a

3 drug candidate for reducing the risk of developing
4 the disease.

5
1 13. The method of claim 11, further comprising the step
2 of identifying a protein associated with the
3 disease-influencing gene.

4
1 14. The method of claim 13, further comprising the
2 step of using the protein to develop a drug
3 candidate for reducing the risk of developing
4 the disease.

5
1 15. The method of claim 10, wherein the disease-influencing
2 gene is of the type which increases the risk of
3 developing the disease.

4
1 16. The method of claim 15, further comprising the step
2 of using the disease-influencing gene to develop a
3 drug candidate for reducing the risk of developing
4 the disease.

5
1 17. The method of claim 15, further comprising the step
2 of identifying a protein associated with the
3 disease-influencing gene.

4
1 18. The method of claim 17, further comprising the
2 step of using the protein to develop a drug
3 candidate for reducing the risk of developing
4 the disease.

5
1 19. A method for identifying a disease-influencing substance,
2 the method comprising the steps of:

- 3 a) selecting individuals having a risk factor for a
4 disease;
5 b) creating queries regarding the individuals' behaviors
6 and environments;

- c) storing the queries on a server;
- d) providing each of the individuals with a remotely programmable apparatus having a user interface for communicating the queries and for receiving responses, and having communication means for communicating with the server through a communication network;
- e) transmitting the queries from the server to each of the remotely programmable apparatuses;
- f) transmitting the responses of the individuals to the queries from the remotely programmable apparatuses to the server;
- g) creating a database of the individuals' behaviors and environments;
- h) determining the genotypes of the individuals;
- i) distinguishing a group of the individuals having similar genotypes;
- j) categorizing the group of individuals into at least two categories according to their disease progressions; and
- k) using data mining techniques to find a disease-influencing substance from the behavioral and environmental profiles between the at least two classes of individuals.

20. The method of claim 19, wherein the disease-influencing substance is of the type which reduces the risk of developing the disease.

21. The method of claim 20, further comprising the step of using the disease-influencing substance to develop a drug candidate for reducing the risk of developing the disease.

22. The method of claim 19, wherein the disease-influencing substance is of the type which increases the risk of developing the disease.

1 23. The method of claim 22, further comprising the step
2 of using the disease-influencing substance to
3 develop a drug candidate for reducing the risk of
4 developing the disease.

5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
SUB
A4
24. A database and data processing system for finding a
disease-influencing gene among individuals having a risk
factor for a disease, the database and data processing
system comprising:

- a) a server for storing queries regarding the individuals' behavior and environment and for storing the individuals' responses to the queries;
- b) at least one remotely programmable apparatus in communication with the server, wherein the remotely programmable apparatus comprises:
 - i) a user interface for communicating the queries to the individuals and for receiving the responses; and
 - ii) communication means for receiving the queries from the server and for transmitting the responses to the server;
- c) genotyping means in communication with the server for obtaining the genotype of the individual; and
- d) data mining means in communication with the server, wherein the data mining means includes:
 - i) means for analyzing the responses in order to group the individuals having a similar behavioral and environmental profile, a similar disease progression, and a similar genotype;
 - ii) means for analyzing the responses in order to group the individuals having a similar disease progression;
 - iii) means for analyzing the responses in order to group the individuals having a similar genotype; and
 - iv) means for identifying the disease-influencing gene.

1 25. The system of claim 24, further comprising at least one
2 monitoring device for producing measurements of a
3 physiological condition of the individuals and for
4 transmitting the measurements to the remotely
5 programmable apparatus, wherein the apparatus further
6 includes device interface means for receiving the
7 measurements from the monitoring device and means for
8 transmitting the measurements to the server.

1 26. The system of claim 24, further comprising means for
2 identifying a protein associated with the disease-
3 influencing gene.

4
1 27. A database and data processing system for use in finding a
2 disease-influencing substance among individuals having a
3 risk factor for a disease, the database and data processing
4 system comprising:

- 5 a) a server for storing queries regarding the individuals'
6 behavior and environment and for storing the
7 individuals' responses to the queries;
8 b) at least one remotely programmable apparatus in
9 communication with the server, wherein the remotely
10 programmable apparatus comprises:
11 i) a user interface for communicating the queries to
12 the individuals and for receiving the responses; and
13 ii) communication means for receiving the queries from
14 the server and for transmitting the responses to the
15 server;
16 c) genotyping means in communication with the server for
17 obtaining the genotype of the individual; and
18 d) data mining means in communication with the server,
19 wherein the data mining means includes:
20 i) means for analyzing the responses in order to
21 group the individuals having a similar behavioral

- 22 and environmental profile, a similar disease
23 progression, and a similar genotype;
24 ii) means for analyzing the responses in order to
25 group the individuals having a similar disease
26 progression;
27 iii) means for analyzing the responses in order to
28 group the individuals having a similar genotype;
29 and
30 iv) means for identifying the disease-influencing
31 substance.

32
1 28. The system of claim 27, further comprising at least one
2 monitoring device for producing measurements of a
3 physiological condition of the individuals and for
4 transmitting the measurements to the remotely
5 programmable apparatus, wherein the apparatus further
6 includes device interface means for receiving the
7 measurements from the monitoring device and means for
8 transmitting the measurements to the server.

9
1 29. The system of claim 27, further comprising means for
2 identifying a protein associated with the disease-
3 influencing gene.
4

added
C1